NAME: DATE:

Mastery Assessment of Unit 2 (Practice version 118)

Question 1

Let f represent a function. If $f[7] = 34$, then there exists a knowable solution to the equation below.

$$y = \frac{f\left[\frac{x}{4} - 5\right] - 14}{2}$$

Find the solution.

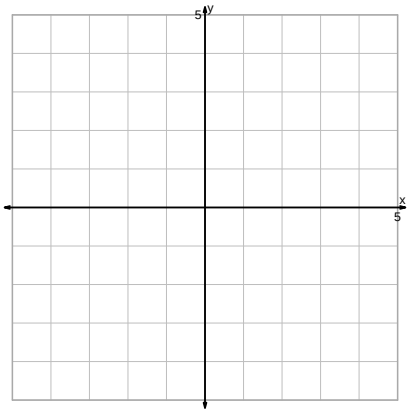
$x =$

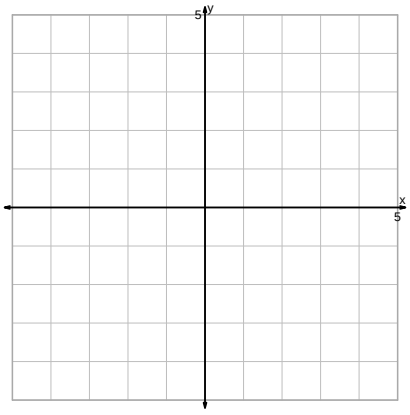
$y =$

Question 2

Graph the equations accurately. For each integer-integer point on the parent, indicate the corresponding point precisely. Also, with dashed lines, indicate any asymptotes.

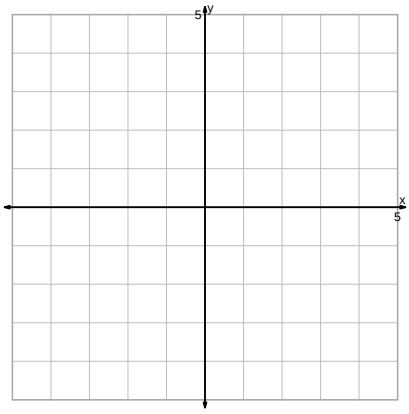
$y = \sqrt{\frac{x}{2}}$

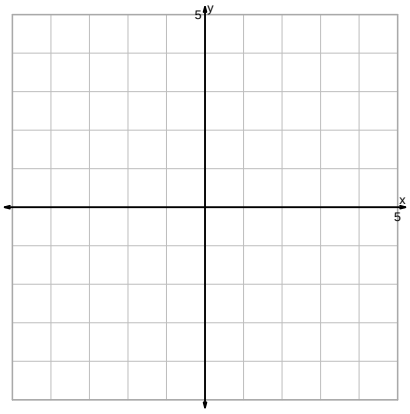




$y = -\sqrt{x}$

$y = x^3 + 2$

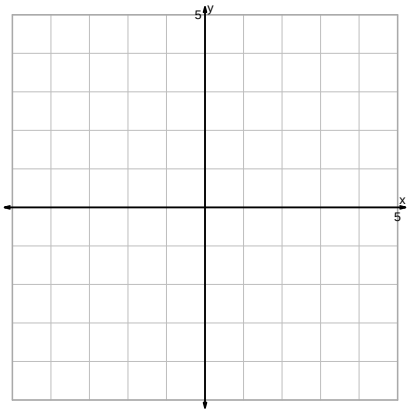


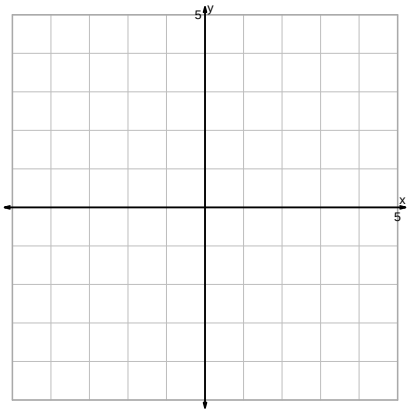


$y = x^2 - 2$

Question 2 continued...

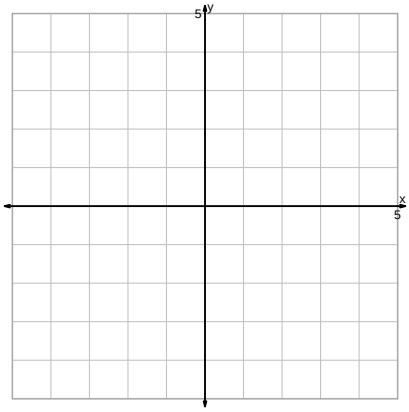
$y = \left(x - 2\right)^3$

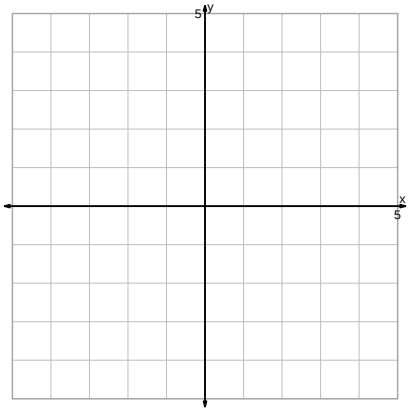




$y = \frac{\sqrt[3]{x}}{2}$

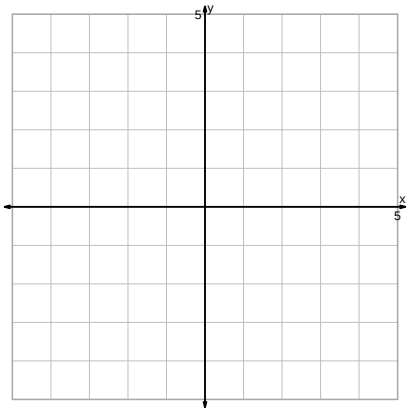
$y = 2 \cdot 2^x$

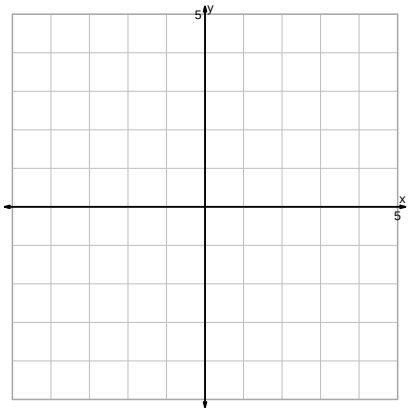




$y = \sqrt[3]{2x}$

$y = \left(x + 2\right)^2$

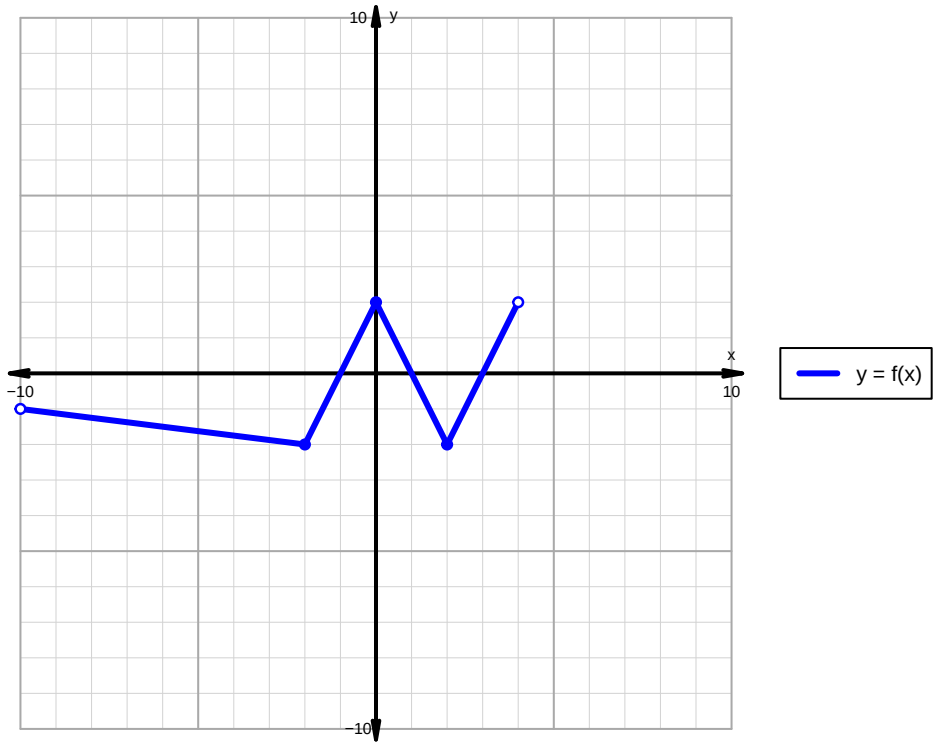




$y = \log_2\left(-x\right)$

Question 3

A function is graphed below.



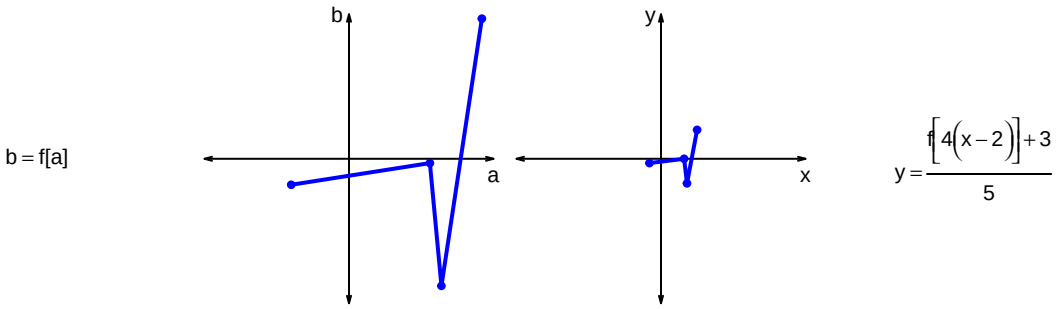
Indicate the following intervals using interval notation.

Feature	Where
Positive	
Negative	
Increasing	
Decreasing	
Domain	
Range	

Question 4

Let f represent a function. The curves $b = f[a]$ and $y = \frac{f[4(x-2)]+3}{5}$ are represented below in a table and on graphs.

a	b	x	y
-40	-18	-8	-3
56	-3	16	0
64	-88	18	-17
92	97	25	20



a. Write formulas for calculating x from a and calculating y from b. (Or, write the coordinate transformation formula.)

b. What geometric transformations (using words like translation, stretch, and shrink), and in what order, would transform the first curve $y = f[x]$ into the second curve $y = \frac{f[4(x-2)]+3}{5}$?

Question 5

A parent square-root function is transformed in the following ways:

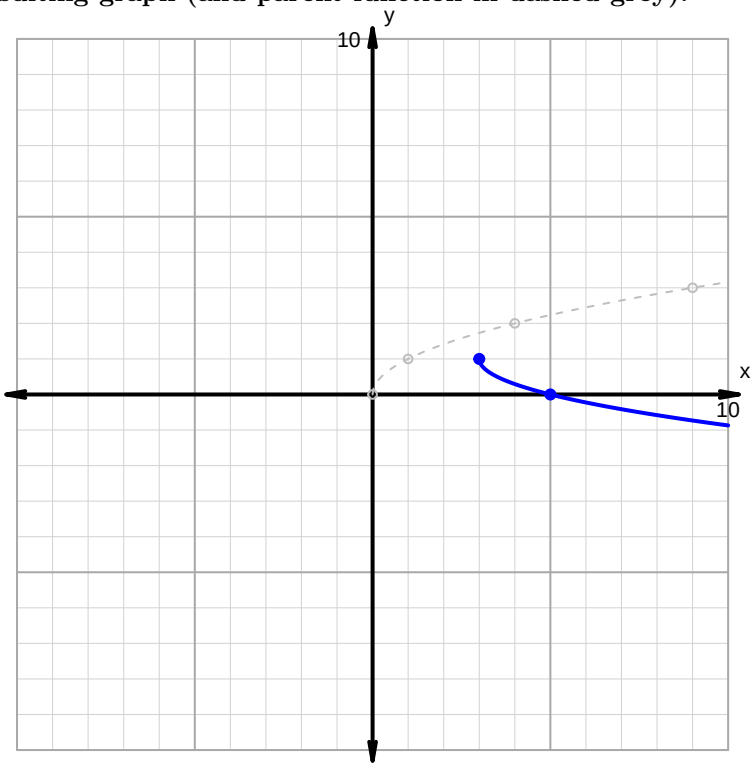
Horizontal transformations

1. Horizontal stretch by factor 2.
2. Translate right by distance 3.

Vertical transformations

1. Vertical reflection over x axis.
2. Translate up by distance 1.

Resulting graph (and parent function in dashed grey):

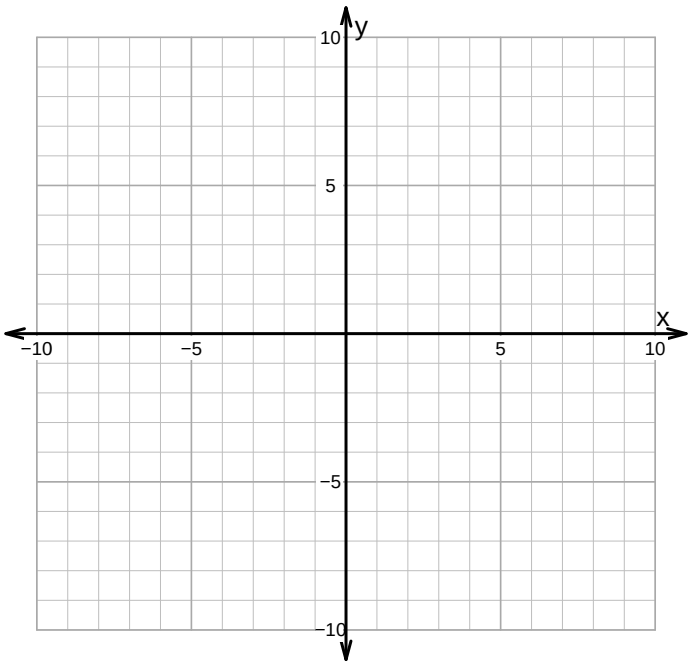


- What is the equation for the curve shown above?

Question 6

Make an accurate graph, and describe locations of features.

$$y = \frac{1}{3} \cdot |x + 1| - 2$$



Feature	Where
Domain	
Range	
Positive	
Negative	
Increasing	
Decreasing	